



DRAFT WORKING PAPER

PMT Recommendation for a Preliminary Preferred Alternative

January 12, 2001

This working paper summarizes the recommendations of the Project Management Team (PMT) for a preliminary preferred alternative for the I-405 corridor. These recommendations were developed by the PMT to assist the program committees in their recommendations and decisions.

NOTE: These recommendations are from the professional staff assigned to the Project Management Team, and do not reflect an official position from the participating lead agencies. The PMT used traffic, natural resource, and built environmental information that was available at the time of this exercise. This information was not yet complete, but will be fully developed prior to the publication of the Draft Environmental Impact Statement, and will be included in that document as well.

Summary of Recommendation and Rationale

Alternative 3 is recommended as the Core Alternative.

Recommended Mobility Investments:

- **Transportation Demand Management (TDM):** Substantially increase the number of van-pools (1700 new vehicles), improve public education, expand employer-based programs, and implement pricing solutions only as part of a regional program.
 - Rationale: Potentially highly cost-effective, minimal environmental impacts, and has the ability to reduce congestion during and after any major construction period.
- **High Occupancy Vehicle (HOV):** Complete the HOV direct access interchanges and supporting investments (park-and-ride, etc.).
 - Rationale: HOV person trips make up a substantial portion of peak period non-SOV travel demand (even with high transit service levels); HOV lanes are critical to improving bus travel times along the corridor.
- **Transit:** Greatly expand transit service (up to 100%) in the corridor, and implement a bus rapid transit (BRT) type service for most north-south transit travel. Explore more automated high capacity transit (HCT) options for cross-lake (SR 520-I-90 Corridor) and related travel. Preserve future HCT opportunities by securing use of the BNSF right-of-way.
 - Rationale: Preserves current direct access investments being made in the corridor and allows expansion of transit's role in the corridor as employment and residential densities increase. Supports peak period travel needs and provides a realistic option to the automobile. The BRT concept was chosen over other HCT options for the majority of the corridor due to its ability to attract similar ridership at less cost. The BNSF right-of-way has the potential to be a highly desirable

alignment for a future HCT system and could provide other transportation opportunities in the short term.

- **Roadway:** Add up to two general-purpose lanes in each direction between I-5 in Tukwila and SR-522 and one lane each direction north to I-5 in Lynnwood. This would include compatible connecting freeway (e.g. SR 167) expansions, along with arterial improvements (shown in Alternative 4). Preserve the opportunity to implement High Occupancy Toll (i.e. HOT) lanes on I-405.
 - Rationale: Mobility problems and congestion remain relatively even with investments in transit and TDM (alternative 1 findings). Providing these roadway investments can facilitate growth management objectives and help ensure the economic growth of the study area. Roadway investment appears to be the most appropriate mechanism to address the growing freight and goods movement. The HOT lane concept could provide additional sustainability, improve flexibility for Transit and HOV travel, and generally increase the person-carrying capacity of the freeway.
- **Non-Motorized:** Include the corridor pedestrian and bicycle facilities.
 - Rationale: Important to provide for safe nonmotorized crossings of I-405, and for improved mobility choices.
- **Intelligent Transportation Systems (ITS):** Continue implementation of ITS strategies along I-405 corridor.
 - Rationale: Cost-effective means to maximize roadway capacity, and supports TDM traveler information needs.
- **Freight Mobility:** Include the majority of the identified freight mobility projects.
 - Rationale: Providing physical improvements for trucks will help maintain a safe travel environment for all vehicles, while maximizing freight travel time predictability. Some identified freight initiatives would be best handled in a regional context (i.e. such as the FAST project).

Environment and Livability

The study area environmental impacts generally increase with the amount of investment in each alternative and the number of corridors impacted. While some avoidance measures were used to develop the alternatives, the documented environmental findings are based on a situation without implementing avoidance, mitigations, or enhancement measures. In reality, many of these environmental actions will be incorporated into the project designs, such that the environmental impacts could be greatly reduced, and in some situations improved compared with the no-action alternative.

One of the most significant outstanding issues is the ability of the Preliminary Preferred Alternative to meet the requirements of the Endangered Species Act (ESA). This issue will require a new approach to developing major projects; a partnership is needed between the agencies administering the ESA and those responsible for maintaining and improving the transportation system. It is clearly understood that significant investments will be required to resolve ESA and other environmental issues in a highly urban and environmentally sensitive area such as the I-405 corridor.

DEVELOPMENT OF THE PMT RECOMMENDATION

Background

In developing the draft recommendation, the PMT has followed the process set forward during the past two months to select a preferred alternative for I-405. We have been guided by the program's Purpose and Need statement and guiding principles that were established by the program committees. The recommendations contained in this memo are the first of a three-phase approach, starting with the development of a Preliminary Preferred Alternative (PPA) in late January, development of a Preferred Alternative in the draft EIS in April/May 2001, and leading to a final recommendation in the Final EIS in late fall, 2001.

The Purpose and Need Statement for the project is:

The *need* is to improve personal and freight mobility, and reduce foreseeable traffic congestion in the corridor that encompasses the I-405 study area from Tukwila to Lynnwood in a manner that is safe, reliable, and cost-effective.

The *purpose* of the proposed action is to provide an efficient, integrated, and multi-modal system of transportation solutions within the corridor that meet the project needs in a manner that:

- provides for enhanced livability for communities within the corridor;
- provides for maintenance or improvement of air quality, protection or enhancement of fish-bearing streams, and regional environmental values such as continued integrity of the natural environment;
- supports a vigorous state and regional economy by responding to existing and future travel needs; and
- accommodates planned regional growth.

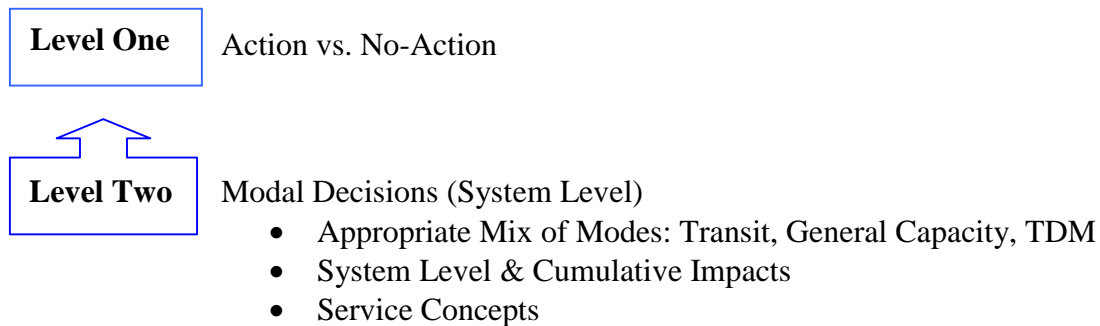
Focus of the Preliminary Preferred Alternative

The focus of the Preliminary Preferred Alternative has been on two levels of decision:

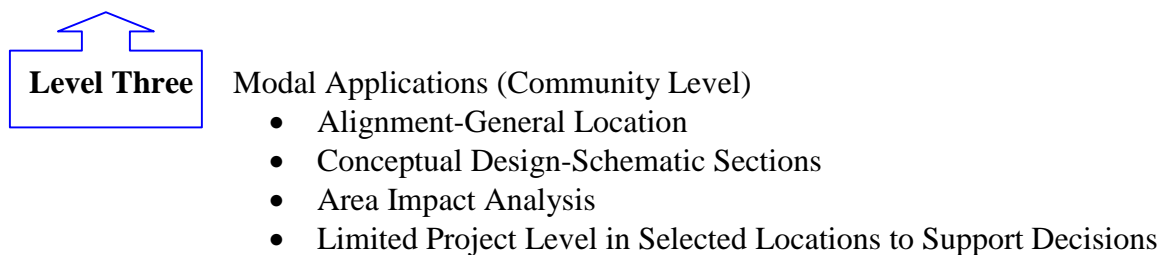
- Level 1 Decision - Decide between No-Action and Action
- Level 2 Decision - Decide on the appropriate mix of modes at a 'system level'

Thus, the Preliminary Preferred alternative provides a framework with the overall strategic mix of modes and system improvements that best meet the Purpose and Need of the I-405 Corridor Program. Once the preliminary preferred alternative is selected, additional details will be defined within each community.

(Levels One and Two: Selection of the Preliminary Preferred Alternative – Pre DEIS)



(Level Three: Selection of the Preferred Alternative – DEIS)



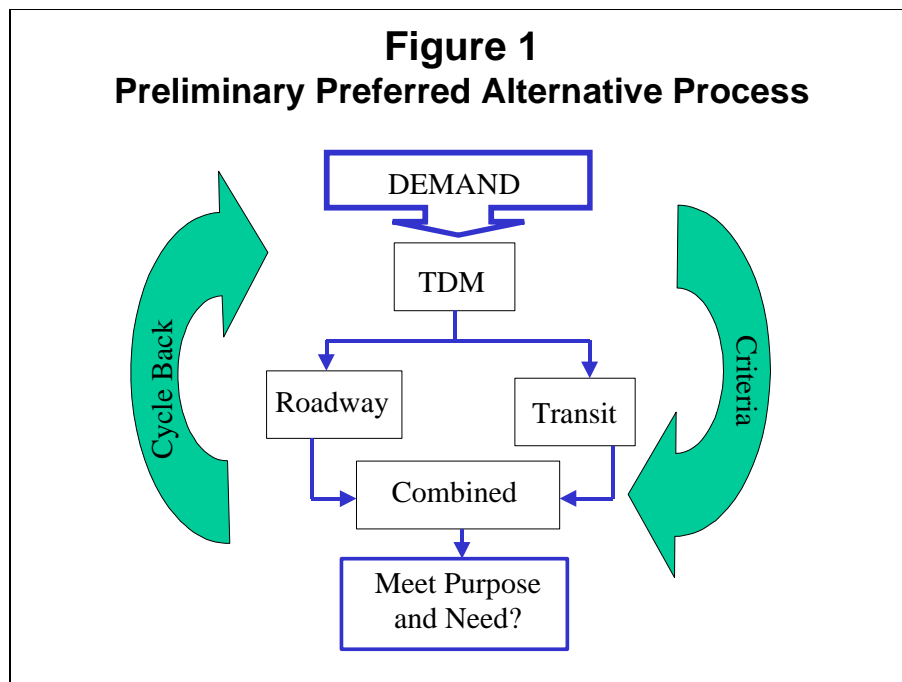
Steps for Developing a Preliminary Preferred Alternative

The preliminary preferred alternative decision process is focussed on developing the best mix of transportation investments that are locally and regionally balanced. The PMT has used the process listed below, consistent with the committee process outlined in the December 14 and 19, 2000 Committee meetings and subsequent December 20, 2000 memorandum.

Process:

1. **Alternatives Review:** Review description of critical elements of the no-action and the four build alternatives.
2. **Criteria:** Refine the evaluation criteria and performance measures.
3. **Key Finding and Performance Results:** Evaluate performance results and establish key findings, one objective (i.e. mobility) at a time.
4. **Alternatives Rating:** Rate each alternative, proceeding one criterion at a time.
5. **Preliminary Preferred Alternative Recommendation:** Produce a recommendation on the PPA using the results of the alternatives rating. Focus on the selection of a 'core' alternative around which to develop the PPA. Modify the 'core' alternative by including high performing elements and deleting low performing elements.

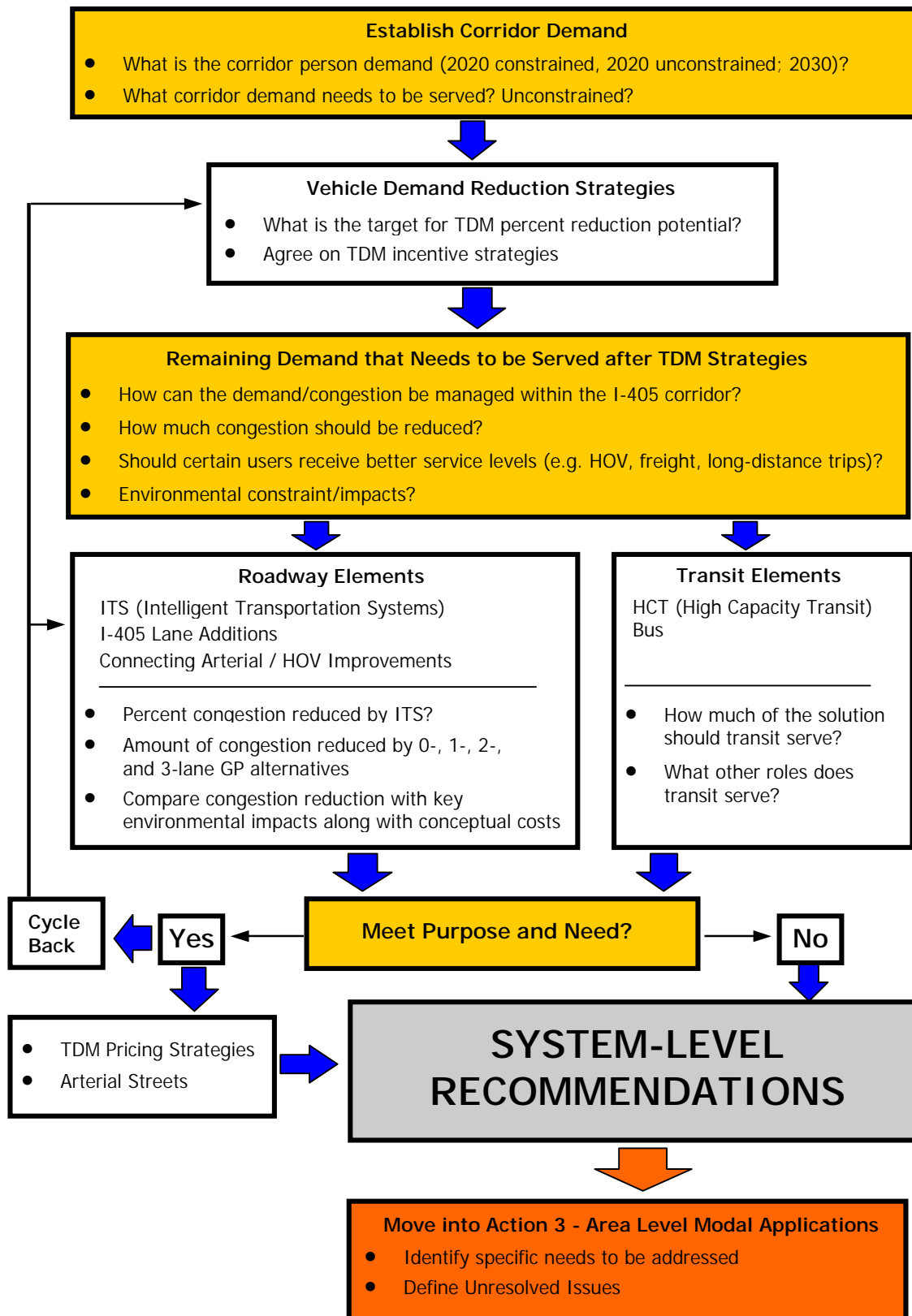
There is an iterative loop involved in making these decisions using the established criteria, as shown in **Figure 1**.



The decision process started with identification of corridor demands that should be met by the I-405 strategies, as shown in **Figure 2**. The PMT primarily used the screenline results showing peak period and daily person travel demands within the corridor. The process proceeded with determining how many of these demands can be accommodated by Transportation Demand Management (TDM). This focused the initial attention on the role of demand reduction strategies within the corridor prior to dealing with transit and roadway widening options.

The process then moved into consideration of roadway and transit elements, recognizing the appropriate role of each element and its relative contribution to meeting the corridor mobility criteria, while mindful of the livability and environmental impacts objectives embodied in the criteria. On the roadway side of the decision, the focus was on I-405 and its supporting facilities. The PMT examined each of the alternatives in terms of how well they met these objectives, with the intent to select a 'core' alternative from which to develop the PPA.

Figure 2: Preliminary Preferred Alternative Selection Process



Project Management Team Findings and Recommendations

The findings are separated into two parts:

1. Results of Alternatives Ratings
2. Recommendations for a Preliminary Preferred Alternative

The PMT acknowledges that there are still outstanding criteria results that need to be fully examined. Those items are noted within the findings.

Alternatives Rating

The PMT rated each alternative, proceeding one criterion at a time. Selected criteria were not evaluated due to insufficient data at the time. These criteria will be reviewed as soon as information is available. The team used a 1-5 rating scale (i.e. with 5 being best), and then summed the totals across each alternative. A summary of the ratings is shown in **Table 1**.

Table 1 - Summary of PMT Findings on Criteria Ratings

Criteria	PMT Summary Evaluation
Transportation (Mobility, Congestion, Safety)	<ul style="list-style-type: none">◆ Alts 2, 3, and 4 had good ratings, with No-Action being the lowest.◆ Alt 3 was slightly higher than Alt 4, with high ratings under each category.◆ Alt 2 scored average in most categories.◆ Alt 1 scored low to moderate in mobility and safety, with poor ratings on congestion.◆ Alt 4 scored similar to Alt 3 on mobility, and highest on congestion reduction.
Livability and Environmental	<ul style="list-style-type: none">◆ Each alternative rated within a fairly narrow band. (The PMT noted that data for several criteria were not yet available; also, these results include no mitigation).◆ No-Action rated best with respect to most natural environment criteria, but scored relatively poorly on consistency with plans and policies, and indirect impacts.◆ Adverse impacts of each build alternative can be further minimized or mitigated, and significant opportunities exist for enhancement.◆ Alt 1 performed similar to No-Action, but had greater adverse effects on water and sensitive areas.◆ Alt 2 rated marginally worst with average or lower ratings across all criteria.

Criteria	PMT Summary Evaluation
	<ul style="list-style-type: none"> ◆ Alt 3 performed better than average for several system-level criteria such as air quality, consistency with plans and policies, and indirect impacts, but was lower than average on sensitive areas, and noise and visual impacts. ◆ Alt 4 performed best for air quality, but worst for noise, visual, and water.
Implementation	<ul style="list-style-type: none"> ◆ No-Action and Alt 1 had highest overall ratings, primarily due to lower overall costs and limited construction impacts. Both rated lowest on likely public support. ◆ Alts 2 and 3 rated average overall, but highest on likely public support. ◆ Alt 4 rated lowest due to very high costs. ◆ Alt 3 had highest Benefit/Cost ratio. ◆ “Cost to Users” was not rated due to its ambiguity.

Preliminary Preferred Alternative Recommendation

The PMT used the results of the alternatives rating to assist in making a recommendation on the PPA. **Appendix A** contains the completed Worksheet #2 with the PMT recommendations for major elements. The remainder of this section summarizes the PMT recommendations and related design suggestions. Several areas requiring additional information are also highlighted.

Recommended Core Alternative

Alternative 3: *This alternative provides a multi-modal blend of transit/HOV and general traffic improvements within the study area that supports the Purpose and Need statement.* Following is a discussion of the key elements included in the draft PMT recommendation.

Role of Transportation Demand Management

The independent analyses of the proposed TDM program (without pricing) indicate that the program would provide effective incentives for carpooling, vanpooling, and transit. Daily vehicle trips could be reduced on the order of 4 to 6 percent, with peak period impacts being roughly twice as high. ***The TDM program should be put into place early in the implementation phase to provide mobility options during construction of physical improvements.*** The PMT also notes that considerable residual person demand would still exist within the corridor once the TDM program was put into place.

Regarding pricing strategies, the PMT believes that pricing of transportation modes to match available capacity (e.g. ‘congestion’ pricing) is a valid concept that has applicability within the I-405 corridor. However, with the exception of a specific High Occupancy Toll (HOT) lane

treatment, the broader consideration of pricing needs to occur at the regional level. Realizing the limited available capacity remaining in 2020 with any of the alternatives, ***support for further examination of the PSRC regional pricing activities for longer-term application in the I-405 study area is warranted.***

Transit/HOV

Bus Rapid Transit: A ***BRT type of service would be the primary transit focus north-south within the corridor.*** The BRT makes maximum use of the freeway HOV system already in place, as well as judicious use of arterial transit priority and expanded transit centers/park-and-ride facilities. Transit ridership forecasts for BRT were very similar to the fixed-guideway HCT elements tested, and the BRT offers more opportunities to combine neighborhood and express-type transit service within the study area. ***The BRT should be coupled with expansions in local transit service, with up to a 100% increase in overall transit hours of service.***

Fixed-Guideway HCT: While a fixed-guideway system is not necessary to meet the 2020 transit ridership projections in all segments of the corridor, ***the central segment (Bellevue/Redmond/Kirkland) deserves further consideration.*** This includes the cross-lake segment (on I-90, SR 520, or other) and the portion of the study area through central Bellevue. In addition, ***the PMT suggests that the BNSF be acquired for future (post-2020) use as a transportation corridor that could include HCT.*** The specific technology decisions should be made as part of Sound Transit Phase II. This would provide time for other emerging technologies to be evaluated for possible implementation.

HOV Express: ***The HOV lanes form the spine of the BRT system and should be integrated between major facilities using direct HOV ramps and selected arterial HOV priority treatments.*** To the extent practical, ***the HOV express should continue to permit carpools and vanpools;*** however, volume forecasts indicate that this system would ***need to be restricted to HOV 3+ by 2020 to assure reliable movement of transit.*** ***Further examination of specific direct access ramp locations should be conducted to determine which of these connections would be most cost effective.***

Roadway

I-405: The projected travel demands and congestion in the corridor for 2020 indicate that ***I-405 needs two additional general purpose (GP) lanes in each direction for most sections between SR 522 and I-5 (Tukwila).*** ***The section to the north of SR 522 has sufficiently lower demands and congestion levels such that one additional GP lane should be sufficient through 2020.*** ***However, right-of-way should be secured to add the second lane north of SR 522.*** Impacts to the natural environment should be avoided, minimized, or mitigated.

Serious consideration was given to the express lane concept evaluated in Alternative 4. While appealing as a means to separate ‘through’ and ‘local’ traffic along the I-405 corridor, the PMT believes that the financial and environmental cost of this facility is too high to be feasible or to be included during the 2020 time horizon. In addition, the express roadway seems to attract a sufficiently high volume of traffic from the I-5/SR 99 corridors to create a legitimate debate

regarding the role of the I-405 corridor in serving greater regional travel needs. The concept, however, has sufficient appeal to keep it in mind along certain sections of I-405 for periods after 2020.

HOT-Lane Variation: The PMT has been examining a variation of Alternative 3 that would designate two lanes in each direction along I-405 (i.e. the inside HOV lane and the adjacent GP lane) as High Occupancy Toll (i.e. HOT*) lanes. This would require, at a minimum, sufficient width designed to provide a buffer lane between the regular and HOT lanes. ***The PMT believes that a design could be accommodated to provide this flexibility, and suggests that the HOT lane concept be further evaluated.***

Other Freeways: ***Freeways connecting to I-405 should be improved (generally one additional traffic lane in each direction leading to, and including, freeway ramps)*** to provide for easy access to the I-405 corridor. Certain freeway corridors, such as I-5, SR 518, SR 167, SR 520 (being studied in TransLake), and SR 522 will likely require widening for substantial distances approaching I-405. For example, it appears that SR 167 would need to be widened by at least one lane from approximately Kent/Auburn north to I-405. ***Ramp merges and weaves will likely require the equivalent of two additional lanes along SR 167 for a section extending approximately 1 mile to the south of I-405.*** This particular location has sensitive wetlands and stream locations that must be adequately addressed in the design of the freeway.

Arterials: Several ***arterial widenings (for HOV and general traffic) are recommended by the PMT.*** While I-405 addresses much of the north-south travel needs in the corridor, improvements to the east-west arterial connections are vital to move people to/from the freeway corridor. These arterial widenings, will prove to be beneficial in keeping substantial traffic volumes out of existing neighborhood streets. The limited improvements in north-south arterial capacity will help keep a balance of travel between the freeway and arterial corridors for a variety of trip types. ***The traffic modeling results indicate that traffic pressures will remain along many of these north-south corridors, such that additional improvements on those facilities may be needed in the future. Improvements to local arterials will be at the discretion of the jurisdictions and the sub-regional planning process.***

*HOT Lanes (High Occupancy Toll Lanes): HOV facilities that allow lower occupancy vehicles, such as solo drivers and lower occupant carpools, to use these facilities in return for toll payments, which could vary by time-of-day or level of congestion. The lower occupant travelers are willing to pay a toll to benefit from the time savings that HOT lanes provide.

Other Elements

Non-Motorized: ***It is recommended that the corridor improvements include pedestrian and bicycle facilities, including the longer distance trails.*** These facilities are important to provide for safe, nonmotorized crossings of I-405, and to provide mobility choices for work and nonwork trips.

Intelligent Transportation Systems: ***It is recommended that ITS strategies continue to be an active part of the I-405 program.*** They are cost-effective means to maximize roadway capacity, and have the potential to be integral to the success of the TDM program, which relies on good

information for travelers. In the future, I-405 could be a good candidate for applications of Automated Highway Systems.

Freight Mobility: ***The majority of the identified freight mobility projects should be included in the PPA.*** In particular, the physical improvements that will benefit trucks will also assist in maintaining a safe environment for all freeway users. Some of the freight initiatives may best be handled in a regional context, such as in the FAST corridor project. Additional freight flow information would be helpful in further focusing the freight investments within the I-405 corridor.